BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Order Instituting Rulemaking to Continue Implementation and Administration of California Renewables Portfolio Standard Program.	)))))	Rulemaking 11-05-005 (Filed May 5, 2011)

COMMENTS OF SAN DIEGO GAS & ELECTRIC COMPANY (U 902 E) ON ADMINISTRATIVE LAW JUDGE'S RULING (1) ISSUING AN ENERGY DIVISION PROPOSAL ON THE RENEWABLES PORTFOLIO STANDARDS CALCULATOR, (2) ENTERING THE PROPOSAL INTO THE RECORD, AND (3) SETTING A COMMENT AND WORKSHOP SCHEDULE

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I. INTRODUCTION

In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission (the "Commission") and the *Administrative Law Judge's Ruling (1) Issuing an Energy Division Proposal on the Renewables Portfolio Standards Calculator, (2) Entering the Proposal Into the Record, and (3) Setting a Comment and Workshop Schedule* (the "ALJ Ruling"), San Diego Gas & Electric Company ("SDG&E") hereby submits these comments regarding the Energy Division proposal for the Renewables Portfolio Standard ("RPS") Calculator (the "Staff Proposal").

The Staff Proposal includes proposed updates and revisions to the RPS Calculator intended to assist in the development of policy-based portfolios for use in the generation and transmission planning processes.[1/] The ALJ Ruling directs parties to respond to a

[1/] Staff Proposal, p. 1.

series of questions regarding the Staff Proposal. SDG&E's responses to these questions are set forth below. In addition to these responses, SDG&E offers several general comments regarding the RPS Calculator update process.

First, while SDG&E supports the calculation of a renewable procurement case above 33% as a sensitivity, it notes that the above-33% case should not pre-judge the outcome of the work that has yet to be initiated regarding the Commission's new authority under Assembly Bill ("AB") 327.[2/] Second, the RPS Calculator is intended to model the State's renewable portfolio going forward, and should therefore be consistent with the renewable procurement practices as outlined in the investor-owned utilities' ("IOUs'") annual RPS Plans. In other words, changes should be made to the RPS Calculator to the extent it requires adjustment in order to accurately reflect renewable procurement practices; changes should not be made to renewable procurement practices in an effort to support assumptions made by the RPS Calculator. Third, several questions in the Staff Proposal request an opinion regarding the reasonableness of cost and facility assumptions. As a practical matter, this data should come from publicly available sources and questions regarding its validity would best be posed to the market and the final assumptions would be best developed via workshops. Finally, Staff proposes to assume that all banked procurement is applied equally over a ten year period.[3/] SDG&E supports use of this simplifying assumption for modeling purposes as it would be impossible to model exactly how each retail seller will utilize its bank.

[2/] D.14-11-042, *mimeo*, p. 4.
[3/] Staff Proposal, p. 13.

SDG&E's responses to the questions posed in the Staff Proposal are set forth below. SDG&E looks forward to participating in the workshop process to refine the Staff Proposal and to further discussions regarding the RPS Calculator.

II.
RESPONSES TO QUESTIONS IN STAFF PROPOSAL

A. Renewables Net Short Methodology

i. Questions 1 and 2

RESPONSE: These questions ask whether it is reasonable to assume that a Commission-approved power purchase agreement ("PPA") is sufficient to establish viability for long-term generation and planning purposes and, if not, how the procurement process should be modified to validate this assumption or how projects for the policy preferred scenario should be selected. SDG&E submits that a Commission-approved PPA signifies sufficient viability for planning purposes. An approved PPA indicates that (i) the underlying project has provided proper documentation to support its viability/value; (ii) the results of the project's least-cost, best fit ("LCBF") analysis were favorable; (iii) it successfully completed negotiations with the purchasing IOU; and (iv) the Commission's review of the project materials was positive. Approval of the PPA opens the door to project financing, thereby further enhancing the project's viability. SDG&E also supports the proposal for probability weighting on a portfolio-wide basis since unforeseen events can impact even the most viable of projects and thus, as the Staff Proposal correctly observes, "not all projects with CPUC-approved contracts will ultimately achieve commercial operation."[4/]

[4/] Staff Proposal, pp. 11-12.

ii. Question 3

RESPONSE: This question seeks an opinion regarding inclusion of Commission-approved projects in the policy-preferred portfolio, even if including such projects will trigger the need for a major new transmission project. As stated above, SDG&E views a Commission-approved contract as a sufficient measure of viability. Barring major issues during construction, a project with an approved PPA will come online and its power will be purchased for the contract term, and should therefore be planned for. Additionally, a Phase II generator interconnection study is an eligibility requirement of the RPS Request for Offers ("RFO") – any project with an approved PPA will have been evaluated in its entirety (including any estimated transmission cost responsibility) and found to be competitive. The RPS Calculator should include all projects with Commission-approved contracts as part of the renewable portfolio that is being developed.

iii. Question 4

RESPONSE: This question asks whether the projects listed in the RPS Calculator should be risk-adjusted to match the IOUs' RPS Plans. SDG&E supports this proposal as it reflects the IOUs' best estimate of the volume of RPS energy that will be procured, which in turn reflects the net short authorized and used for RPS planning and procurement purposes. SDG&E also supports the use of one portfolio-wide risk-adjustment percentage and agrees that this will "avoid singling out and excluding individual projects… and [will also avoid] divulging confidential information about any one RPS project."[5/]

[5/] Staff Proposal, p. 12.

iv. Question 5

RESPONSE: This question asks whether generic projects should be risk-adjusted. SDG&E supports risk-adjusting of generic procurement in the RPS Calculator inasmuch as this will allow for the planning of additional procurement to replace those projects that will ultimately fail, thereby providing a more realistic picture of unmet renewable resource requirements. This is different from the current Renewable Net Short ("RNS") methodology, which assumes a 100% probability for generic procurement. SDG&E recommends that the current RNS methodology be revised to allow for the usage of failure rates for generic procurement associated with authorized programs (such as the Renewable Auction Mechanism ["RAM"] and Renewable Market Adjusting tariff ["Re-MAT"]), and for other generic procurement that is used to fill unmet need. This will ensure that forecasting and transmission planning (the RPS Calculator) is aligned with actual procurement practices (the RPS Plan).

v. Question 6

RESPONSE: This question asks if projects with expiring contracts should be treated as the IOUs specify in their RPS plans. SDG&E agrees with this proposal. An IOU spells out how it will procure RPS resources in its RPS Plan and is then authorized by the Commission to execute the strategy described therein. The RPS Calculator is being used to plan for this RPS procurement, thus logic dictates that the assumptions used should be consistent with the RPS Plans.

vi. Question 7

RESPONSE: This question asks for validation of the assumption that all facilities with expiring contracts will incur 25% of the capital cost of a new project. SDG&E is

uncertain whether a generic 25% capital cost estimate is reasonable. Technology-specific factors may be more appropriate. Many of the older generations of wind machines, for example, are being replaced with new machines. SDG&E submits that further consideration of this question is required and recommends that the Commission provide the basis for the 25% assumption, and discuss and validate or modify it via workshops.

vii. Question 8

RESPONSE: This question asks how publicly-owned utility ("POU") procurement should be accounted for in the RPS Calculator. The RPS requirements apply to all of California's Load Serving Entities ("LSEs"), and these requirements can be met with renewable procurement anywhere within and, with certain restrictions, outside the state. For this reason SDG&E believes the RPS Calculator model should present a holistic view of California's RPS requirements, accounting for all RPS procurement in the state to the extent possible, not just IOU RPS procurement. It is important that the California Independent System Operator's ("CAISO's") Transmission Planning Process ("TPP") facilitate the ability of the IOUs, and all other LSEs within the CAISO, to meet their respective RPS requirements. Incorporating POUs' renewable procurement will provide a clearer picture of the statewide RNS, the generation that will be needed to fill this RNS and the potential transmission solutions that would facilitate the development of such generation.

The Calculator should include assumptions regarding the connecting Balancing Authority ("BA") for each renewable resource option as this will assist in determining the scope of the CAISO's TPP. It is likely that the California Energy Commission ("CEC") already has data regarding POU RPS procurement. SDG&E recommends that the

Commission work with the CEC and with the POUs to ensure completeness of this data, include it in the RPS Calculator and utilize the same methods that used for the IOUs to forecast future POU RPS procurement. To maintain consistency between IOU and POU forecasting within the Calculator, a risk-adjustment percentage should also be applied to projects contracted for by the POUs.

B. Renewable Energy Resource Potential and Cost Update

i. Questions 9 and 11

RESPONSE: These questions ask for validation of the methodology used to determine the new Super Competitive Renewable Energy Zones ("Super CREZs"), as well as the cost and performance assumptions used by the methodology for various resources. SDG&E believes that the best forum to vet Super CREZ data is workshops, and reserves the right to comment on the CREZ methodology and assumptions in the future.

C. Levelized Cost of Energy

i. Question 12

RESPONSE: This question asks for an opinion on the Levelized Cost of Energy ("LCOE") calculation assumptions. Based on its initial review, SDG&E offers two recommendations: (i) the RPS Calculator should have the ability to model tax credits, but should only model those in effect; and (ii) the RPS Calculator should account for the differences in economic lifetimes of both resources and the transmission upgrades supporting these resources.

While SDG&E believes that the RPS Calculator should have the capability to model the impact of tax credits, it does not support modeling those that are no longer in effect, unless they are renewed. Regarding the Production Tax Credit ("PTC"), this tax credit expired in 2013, and unless a project commenced construction by the end of 2013, it cannot benefit from the PTC. Yet slide 8 of the presentation entitled *Levelized Cost of Energy* states that the "PTC applies to all projects constructed by 2017 (same lifetime as ITC)." This is plainly incorrect – it is highly unlikely that a project that commences construction in late 2013 would continue construction for the following four years. Additionally, the Investment Tax Credit ("ITC") sunset date, which is not relevant, appears to be used as a rationale for this assumption. It is important that the Calculator contain the most realistic sets of costs; extending the PTC beyond its sunset date of 2013 does not support this objective.

SDG&E also notes that the expected economic lifetime of generation projects, as well as the transmission upgrades that support them, will differ. Normalizing this difference is important so that the Calculator can recognize the value of longer-lived assets and select the mix of assets providing the greatest overall value to consumers. The economic life of transmission lines is typically 60 years; as such, SDG&E recommends using this timeframe to levelize transmission line costs as well as the cost of renewable resource options considered by the RPS Calculator (utilizing refurbishment assumptions as necessary to reach an equivalent 60-year lifespan).

D. Treatment of Transmission Costs in Version 6.0

i. Question 13

RESPONSE: This question asks how best to update the cost estimates for new and existing transmission associated with Super CREZs. While SDG&E does not propose a methodology at this time, it reserves the right to do so in the future and recommends that the methodology accommodate a wider range of transmission expansion options for inclusion in the RPS Calculator. This range should reflect transmission upgrades of varying scope and cost such that the RPS Calculator can make economic decisions as to whether it is best to pursue small scale or large scale renewable resource development in certain areas.

ii. Question 14

RESPONSE: This question asks if the proposed iterative process to determine transmission upgrade costs in areas that have not been studied in detail is reasonable. As explained in the response to Question 13, SDG&E recommends greater granularity with respect to transmission expansion options – limiting the options to a "minor" or "major" upgrade is too restrictive. The RPS Calculator should have the ability to choose between different transmission expansion options with different RA deliverability capabilities and associated costs.

Additionally, it appears that the current proposal assumes any out-of-state ("OOS") renewable resource option will require new transmission, but the basis of this assumption is unclear. A method should be developed to determine the amount of existing transmission that is available to accommodate OOS renewable resource development because, in reality, a significant portion of the OOS renewable energy

output will be consumed by local OOS loads, and the Calculator should recognize this fact. Given the requirement that OOS renewables must be "delivered to California when generated," it may be necessary to account for wheeling costs to the extent existing OOS transmission is available. With a contract path in place, forecast renewable energy output can be scheduled into California in hourly or fifteen minute increments and meet California's statutory requirements.

iii. Question 15

RESPONSE: This question asks whether the RPS Calculator should consider environmental data collected by the Western Electricity Coordinating Council ("WECC") Environmental Data Task Force ("EDTF") to identify routes for new transmission and, if so, how this should be incorporated in to the RPS Calculator's assumptions. SDG&E submits that this information should be reflected in the transmission cost inputs included in the RPS Calculator. To this end, SDG&E recommends that a list of potential transmission expansion options (start and end points) be provided to the EDTF and that the EDTF use its environmental data to estimate a practical length for each option. Once the line lengths have been determined, costs can be estimated for the various transmission expansion options and these options can then be considered by the RPS Calculator in its renewable resource selection process.

iv. Question 16

RESPONSE: This question asks whether the RPS Calculator should be able to evaluate energy-only projects as well as those that are fully deliverable and, if so, how the ranking methodology should be adjusted. SDG&E supports adding this functionality to the model for several reasons: (i) there are marked differences between these types of

facilities as far as products offered and associated costs – those that are energy-only do not require transmission upgrades, and those that are fully deliverable usually do require transmission upgrades in order to provide resource adequacy ("RA") deliverability; and (ii) SDG&E's portfolio of RPS projects includes both types of facilities, therefore it is reasonable to assume that new renewable generation going forward will also be a mix of energy-only and fully deliverable projects. SDG&E also notes that some projects in its portfolio are partially deliverable. Given these facts, the RPS Calculator should have the ability to weigh these three options and rank them based on which option provides the highest overall value to ratepayers.

E. Energy Value

i. Questions 17 and 18

RESPONSE: These questions solicit an opinion on the proposed generation-stack model approach and the granularity of the production profile data, as well as if there are other ways to incorporate the effects of increased saturation such as declining energy value and increased curtailment.

SDG&E believes that a monthly typical-day generation-stack model is appropriate given the limitations of an Excel model, and that these revisions present a significant improvement over the current version of the RPS Calculator. However, this approach is still relatively simplistic as it considers only 288 hours out of an 8760 hour year and does not account for the impact of statistical forecast errors (*e.g.*, with increased amounts of intermittent renewable resources, there will be more instances when over-scheduled load intersects with under-scheduled wind and solar output). To account for the inherent limitations of the stack model, SDG&E recommends that the model be

benchmarked against the CAISO's Phase 1a modeling results from the 2014 long-term procurement plan ("LTPP") proceeding.[6/] This could be done by replicating the RPS portfolio used by the CASIO in its Phase 1a testimony in the stack model, and then adjusting the amount of gross load that must be served by thermal generation in the CAISO to achieve over-generation results that are comparable to what the CAISO reported in its Phase 1a testimony.[7/]

SDG&E believes that negative pricing in over-generation situations reflects very real opportunity costs. These costs should be expressly included in the RPS Calculator. Slide 9 of the presentation entitled *Energy Value* states that "overgeneration results in an energy price of $0/MWh." SDG&E recommends modifying this assumption to account for negative pricing (the opportunity costs associated with curtailing renewable resources) in the event other lower cost means of mitigating over-generation are determined to be unavailable. The opportunity costs of curtailing renewable generation are not insignificant; negative pricing can be as high as $150/MWh.[8/] The RPS Calculator should capture this impact.

F. Capacity Value

i. Questions 19 and 24

RESPONSE: These questions ask whether the Effective Load Carrying Capacity ("ELCC") values should be used instead of the Net Qualifying Capacity ("NQC") values used in prior RPS Calculator versions, and if the ELCC work taking place under the Commission's RA proceeding is relevant. SDG&E supports use of the ELCC values

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6/ Rulemaking 13-12-010.

7/ Slide 11 states that the "Calculator assumes 15% of gross load must be served by thermal generation in CAISO (includes dispatchable & cogeneration plants)." This percentage could be adjusted based on the results of the benchmarking effort.

8/ Order Conditionally Accepting Tariff Revisions, 145 FERC ¶ 61,254, p. 3.

from the Commission's RA proceeding once this data is made available, and supports the use of ELCC values in general for the following reasons: (i) they account for the cumulative impact of renewables on the grid and are therefore more sophisticated than NQC values; (ii) utilizing ELCC values will maintain alignment between the Calculator and RPS procurement practices;[9/] and (iii) adopting the ELCC values from the RA proceeding will provide consistency across Commission proceedings.

However, while ELCC provides a more accurate assessment of each resource's comparative contribution to system RA *requirements*, it says nothing about whether the system RA requirement itself reflects the level of reliability that consumers want and decision-makers actually intend. Currently, system RA requirements are set deterministically at peak load plus a 15% planning reserve margin. LSEs can arrange resource portfolios where the sum of all resources' ELCC exactly equals peak load plus a 15% planning reserve margin, but it is unknown whether such resource portfolios would provide a level of system reliability that is greater than or less than what is minimally acceptable. The current peak load plus a 15% planning reserve margin system RA *requirement* needs to be recalibrated so that it (a) is consistent with the use of ELCC to establish the capacity value of different resources; and (b) achieves a minimum acceptable level of system reliability considering all hours of a year.

There may be a period of time between when the RPS Calculator is used to generate scenarios in 2015, and the issuance of ELCC values from the RA proceeding. For this period of time it would be appropriate to utilize the ELCC values developed by Energy + Environmental Economics ("E3") discussed in the presentation entitled *Capacity Valuation*. Once the ELCC values are provided by the RA proceeding, they

9/ SDG&E 2014 Draft RPS Plan, Attachment A, p. 43.

should then replace the E3 values in the RPS Calculator. Having two sets of ELCC values is not necessary or practical and, in order to provide meaningful results, assumptions within the RPS Calculator should reflect those used in related proceedings as well as the RPS Plan.

ii. Question 20

RESPONSE: This question asks whether the seven resources listed for capacity valuation purposes are reasonable. Without the ability to review results, it is difficult for SDG&E to comment on whether or not these seven categories are sufficient. Availability patterns can vary greatly between different types of baseload renewable resources just as they can for other types of renewable energy. For example wind resources in some wind regimes (*e.g.*, New Mexico, Wyoming and Montana) may have distinctly different availability patterns than wind resources in other wind regimes (Tehachapi or Baja, Mexico, for example). The list presented in the PD is a good starting point, and SDG&E reserves the right to recommend adjustments in the future as more data becomes available.

iii. Question 21

RESPONSE: This question asks whether the assumption that new transmission lines caused by OOS resources contribute 60% of their rated capacity to California's planning reserve margin is reasonable. SDG&E believes that the 60% assumption may be overly conservative. Although the Maximum Import Capability ("MIC") into the CAISO balancing authority is less than the sum of the nominal capabilities of the individual interties into the CAISO balancing authority, applying the 60% discount factor to all new interties into the CAISO balancing authority obscures the fact that during

periods of time critical for system reliability some interties could be contracted near 100% of their nominal capability while other interties are well below 60% of their nominal capability.

An alternative approach would be to count 100% of the nominal import capability of a new intertie as providing RA counting rights. In the event the Calculator selects an RPS portfolio that depends on this new intertie, then the CAISO would use its annual TPP to confirm that the new intertie could support MIC at the 100% level. SDG&E notes that RA counting rights can be supplied from OOS resources that are not renewable. If, for example, the ELCC of a particular OOS renewable resource was 20% of the resource's installed capacity, dependable capacity from existing OOS gas turbines or other existing OOS non-renewable resources could be used to fill the remaining transfer capability of the new intertie with RA counting rights. These additional RA counting rights could be important in that they would reduce the effective cost of the new intertie. As discussed above in the response to Question 14, SDG&E believes that a method needs to be developed to estimate the availability of existing OOS transmission. It is not necessary that new OOS transmission be constructed all the way to the CAISO balancing authority; indeed, there are a number of major transmission expansion proposals that would connect to major renewable resource development areas but do not reach all the way to the CAISO balancing authority. It may be that combining existing OOS transmission with certain new OOS expansion options would provide the lowest cost means of reaching remote renewable resource development areas.

iv. Question 22

RESPONSE: This question solicits an opinion on the proposed approach used to forecast the avoided cost of system capacity, and for any recommended modifications. SDG&E is comfortable with the current process as described in the Staff Proposal, whereby the RPS Calculator "recognizes California's current capacity surplus by valuing capacity at the market price for resource adequacy capacity in current markets until the system is forecast to reach load-resource balance, at which point the long-run value is used."[10/] However, this process may require revision in the future as avoided system capacity costs may change as flexibility requirements are implemented. A new gas turbine, for example, may not be the lowest cost source of ramping capability should ramping capability become the binding capacity constraint. The forecasting method will have to be modified to account for this fact.

v. Question 23

RESPONSE: This question asks whether the RPS Calculator should be modified to recognize the incremental capacity value of resources located in areas with Local Capacity Requirements ("LCR"). SDG&E supports adding this functionality to the model as RPS-eligible resources meeting LCR criteria would also assist the relevant LSE in meeting its system RA requirements. This enhanced ratepayer value should be accounted for when the RPS Calculator determines the optimal portfolio for each scenario run. SDG&E also recommends that the calculation of the avoided capacity value for LCR resources account for the LCR status in the particular LCR area.

[10/] Staff Proposal, p. 27.

In LCR areas where the amount of existing and committed dependable capacity is less than the LCR, the avoided capacity cost should be set at the cost of a new gas turbine (less expected market revenues net of fuel and other variable costs). In LCR areas where the amount of existing and committed dependable capacity is more than the LCR, the avoided capacity cost should be set at the product of: (i) the average of the avoided system RA capacity cost and the cost of a new gas turbine (less expected market revenues net of fuel and other variable costs); and (ii) the LCR for the specific LCR area as a fraction of the existing and committed dependable capacity within that LCR area. This means that if the LCR was 50% of the amount of existing and committed dependable generation within the LCR area, then the applicable avoided capacity price would be the midpoint between the avoided system RA capacity cost and the cost of a new gas turbine (less market revenues net of fuel and other variable costs).

G. Renewable Integration Costs

i. Question 25

RESPONSE: This question requests an opinion on the necessity of an integration adder in the RPS Calculator given the Commission's new authority under AB 327 to increase the RPS goal above 33%. SDG&E's position is that integration is a real, current cost, and should be incorporated into the RPS Calculator now regardless of any potential future increases. In its recently-adopted RPS Plan Decision, the Commission directs the IOUs to use certain integration adder assumptions.[11/] SDG&E recommends that any integration adder incorporated into the RPS Calculator be aligned with these assumptions in order to ensure continuity and meaningful results that are consistent with current RPS procurement practices.

[11/] D.14-11-042, *mimeo*, pp. 61-63.

ii. Questions 26 and 30

RESPONSE: These questions ask whether the proposed list of integration adder components is appropriate and whether anything should be added. SDG&E agrees that the values listed reflect certain aspects or effects of integration, but cautions against the risk of double counting. Of the proposed cost categories, Energy Value (which presumably reflects Energy Value Saturation Effects) and Capacity Value (which presumably reflects Capacity Value Saturation Effects) are explicitly captured elsewhere in the RPS Calculator and should not be double-counted by also being included in the integration adder. Slide 20 of the presentation entitled *Energy Value* states that the "effect of renewable overgeneration is expressed in the RPS Calculator as a multiple on the net levelized cost." Accordingly, Curtailment Due to Overgeneration and Curtailment Due to Inflexibility are also being accounted for separately within the RPS Calculator and should not be included in the integration adder.

Regarding the balance of the proposed list, Operating Reserves and Increased Maintenance are appropriate to include in the integration adder, and SDG&E recommends that Flexible Capacity Needs be deferred to a future RPS Calculator revision as the need for new flexible generation is connected to multiple factors and isolating the portion due to intermittent renewable generation may be too complex at this point. SDG&E looks forward to further discussion on this topic and reserves the right to provide additional input in the future.

iii. Question 27

RESPONSE: This question asks what method should be used to evaluate the integration adder components. SDG&E suggests that Staff focus initially on cost

increases arising from required changes in daily operating practices (*e.g.*, increased maintenance on dispatchable generators as a result of increased ramping and cycling, and the increased amount of operating reserves that need to be carried each day). As explained above under the response to Questions 26 and 30, the cost of new flexible generation that is attributable to intermittent generation is difficult to establish since the need for new flexible generation is related to many different factors (*e.g.*, retirement of Once-Through Cooling ["OTC"] generation, dynamic scheduling from neighboring balancing authorities, the new storage procurement requirement, etc.). SDG&E suggests that consideration of this integration cost category be deferred to a future update of the RPS Calculator model.

iv. Question 28

RESPONSE: This question asks whether the flexibility work underway as part of the LTPP proceeding could inform development of the integration adder. The flexibility work underway in the 2014 LTPP is designed to identify the need for new flexible resources for all reasons, not solely due to renewable intermittency. However, SDG&E believes that this work could be helpful in developing the integration adder if it is possible to use it to isolate the impact of renewable intermittency (*e.g.*, by re-running the models assuming scheduled renewable generation matches actual renewable generation at a level comparable with non-intermittent renewable generation).

v. Question 29

RESPONSE: This question asks if a default assumption of renewable economic curtailment is appropriate when the RPS Calculator encounters flexibility limitations. SDG&E acknowledges that economic curtailment is a valuable tool in managing

overgeneration, but does not believe that it can be used as a default assumption for the existing portfolio of resources as many existing PPAs do not contemplate economic curtailment rights. However, using a default economic curtailment assumption for new projects would be reasonable as future PPAs will include this provision. As it would be impossible to determine the exact amount of economic curtailment for each facility, SDG&E recommends that the Commission determine a flat economic curtailment percentage that can be used across the portfolio of new resources when the Calculator determines that economic curtailment is necessary.

H. Treatment of Small Utility-Scale Resources

i. Questions 31 and 32

RESPONSE: These questions ask for any additions to the proposed list of distributed generation ("DG") benefits, and whether it is realistic to assume that all small utility-scale projects would realize them. SDG&E does not have any additions, but has comments on each of the five categories. SDG&E also notes that these potential benefits are all highly situation-specific, as was acknowledged in the Staff Proposal,[12/] and as such it would not be appropriate to assume that all DG projects would provide each of these benefits.

Beginning with reduced system losses, if large amounts of distribution-level generation are added in areas where loads are low and the transmission system is relatively weak, losses and congestion may actually be higher than if generation were added elsewhere on the transmission system. However, it is possible that in some areas distributed resources would alleviate distribution and transmission system losses.

[12/] Staff Proposal, p. 34.

Therefore, for distributed generation in those areas, it would be reasonable to credit distribution-connected generation for this benefit.

Regarding congestion costs, SDG&E notes that economic grid simulation studies conducted for the CAISO's 2013-2014 TPP have identified limited amounts of congestion within the CAISO balancing authority. Accordingly, there do not appear to be significant congestion-related costs that would be avoided due to distributed generation, and as such this item should not be included in the list of benefits.

With respect to the avoided need for generation in constrained areas such as LCR areas, as indicated above in response to Question 23, generation located in LCR areas should be assigned a capacity value that reflects the avoided cost of capacity within the particular LCR area, capped at the cost of a new gas turbine less estimated market revenues earned by the gas turbine net of fuel and variable operating costs. The same avoided cost would apply to distribution-connected renewable generation and to transmission-connected renewable generation located within the LCR area. All renewable generation options considered in the RPS Calculator model need to indicate within which LCR area, if any, they are located.

Deferral or avoidance of investments in transmission and distribution will be difficult to model as these potential benefits are very case-specific and depend on the location and amount of distribution-level generation being added as well as the location and amounts of load and other generation in the area. Regarding transmission, in some areas where SDG&E is seeing developer interest in distribution-connected generation, loads are relatively small and the existing transmission facilities are commensurately small in scope. If enough distribution-level generation is added in these areas, new

transmission could be required, which highlights the difficulty of developing a generic benefit measure for deferral/avoidance of investments in transmission infrastructure.

With respect to distribution, in many cases developers are seeking to connect to a point on the distribution circuit that requires significant upgrades of the circuit. To ensure accuracy, the cost of these upgrades should be reflected in the interconnection costs included in the RPS Calculator. It is also important to note that absent performance guarantees from a distribution-connected generator, SDG&E cannot rely on the resource to be available when, and at the level, necessary for SDG&E to defer otherwise planned distribution upgrades. This highlights the difficulty of developing a generic benefit measure for deferral/avoidance of investments in distribution infrastructure. A related consideration is the issue of assigning credit to a facility for solving a problem it created. The RPS Calculator should ensure that distribution connected generation is not credited with solving distribution level problems that it causes (*e.g.*, photovoltaic ["PV"] systems should not be assigned a credit for installing a device to mitigate voltage fluctuations due to solar intermittency).

ii. Question 33

RESPONSE: This question asks how, if at all, the Calculator should incorporate location-specific values for DG projects. Given the situation-specific nature of any deferral/avoidance of transmission and distribution infrastructure, the possibility that distributed generation additions could actually *increase* the need for transmission and distribution infrastructure in certain areas, and that there is no fully-vetted method for estimating what the value of such deferral/avoidance is, SDG&E recommends against incorporating a deferral/avoidance value in the RPS Calculator model at this time.

iii. Question 34

RESPONSE: SDG&E submits that the proposed analysis could add unnecessary complexity to the RPS Calculator and proposes that the question of whether such an assessment would add value be considered in workshops. SDG&E reserves the right to provide additional comments on this topic in the future.

I. Aligning Generation and Transmission Planning with Renewable Procurement

i. Question 35

RESPONSE: This question asks what changes should be made to the generation and transmission planning and procurement processes to ensure that resources and transmission are selected that minimize cost while ensuring reliability, and whether the RPS Calculator should have a role or if another process is needed. SDG&E notes that ensuring system reliability is outside the scope of what the RPS Calculator can accomplish. The inputs into the model should, in a broad sense, be compatible with reliable grid operation and expansion, but beyond this high-level subjective assessment it remains the responsibility of the CAISO's annual TPP to ensure that the RPS portfolios can be reliability accommodated. In terms of RPS procurement, IOUs are subject to portfolio balance requirements; an IOU's portfolio must be made up of specified percentages of each of the three RPS product categories.[13/] As such, the RPS Calculator (and subsequent transmission planning) should account for this fact and ensure that the resources selected to fill the RNS would not conflict with the statutory requirements for any of the three categories.

[13/] Pub. Util. Code § 399.16(c).

ii. Question 36

RESPONSE: This question asks what changes, if any, will occur in the usage of the RPS Calculator for the TPP and LTPP processes. SDG&E has no comment on this issue at this time, but reserves the right to comment on this issue in the future.

iii. Question 37

RESPONSE: This question asks if the Net Market Value ("NMV") methodology adopted in the IOUs' RPS Plans should be informed by the RPS Calculator's methodology. SDG&E believes the inverse is true; the NMV adopted in the annual RPS Plans should inform the NMV calculation used in the RPS Calculator. As explained above in the responses to multiple questions, as well as in the response below, the IOUs' Commission-approved RPS Plans spell out how RPS procurement will be solicited, analyzed, and contracted for; in other words, these plans explain RPS procurement practices. In order to provide realistic and meaningful scenarios, the RPS Calculator should reflect this reality.

J. Secondary Costs and Benefits

i. Questions 38-42

RESPONSE: These questions ask whether it is appropriate to include secondary values into the RPS Calculator and, if so, how this might be accomplished. SDG&E believes that the RPS Calculator should reflect what occurs in the RPS procurement process. In other words, it should be consistent with the need authorized in the annual RPS Plans and with the LCBF evaluation process outlined in the RPS Plans. Secondary values, such as pollution hazards and workforce recruitment do not require quantification as they are already inherently captured in the bid price that is central to the LCBF

analysis – a project with a pollution risk will require mitigation, permits, and specialized equipment, which will all be included in the bid price, and the cost of employing the requisite number of workers will also be included in the bid price.

The LCBF analysis identifies the most cost-effective projects that are the best fit for ratepayer needs. The RPS Calculator should share this objective. Attempting to quantify all possible impacts and then cluttering the RPS Calculator with these assumptions would be a poor approach – the results would be speculative at best, including these assumptions would result in double-counting, and if the LCBF process is modified to include these assumptions this would provide a gaming opportunity for developers by diverting the analysis away from actual project economics.

Respectfully submitted this 3rd day of December, 2014.

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Attorney for
SAN DIEGO GAS & ELECTRIC COMPANY

AFFIDAVIT

I am an employee of the respondent corporation herein, and am authorized to make this verification on its behalf. The matters stated in the foregoing **COMMENTS OF SAN DIEGO GAS & ELECTRIC COMPANY (U 902 E) ON ADMINISTRATIVE LAW JUDGE'S RULING (1) ISSUING AN ENERGY DIVISION PROPOSAL ON THE RENEWABLES PORTFOLIO STANDARDS CALCULATOR, (2) ENTERING THE PROPOSAL INTO THE RECORD, AND (3) SETTING A COMMENT AND WORKSHOP SCHEDULE** are true of my own knowledge, except as to matters which are therein stated on information and belief, and as to those matters I believe them to be true.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge.

Executed this 3rd day of December, 2014, at San Diego, California

/s/ Hillary Hebert
Hillary Hebert
Partnerships and Programs Manager
Origination and Portfolio Design Department